APRIL/MAY 2024

23PEPH25A — PHYSICS OF NANOSCIENCE AND TECHNOLOGY

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What are the different dimension of nanomaterial?
2. Define quantum dots.
3. What is lattice constant?
4. Write the abbreviation of DMS.
5. Write a short note on etching process.
6. Why CVD technique is more important?
7. List any two advantages of XPS.
8. Write the ranges of electron used in microscopic techniques.
9. Give a short on nanobots.
10. What is fuel cell?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Organize the Classification of Nanomaterials.

Or

(b) Explain the surface effects of nanomaterials.

12. (a) Classify the various physical properties of Nanomaterials.

Or

(b) Summarize the Ferroelectrics and dielectrics properties of nanomaterials.

13. (a) Explain the nanomaterial preparation using Wet deposition method.

Or

(b) Describe pulsed laser deposition method.

14. (a) Analyze the working of Photoluminescence technique.

Or

(b) Interpret the function of STM.

15. (a) Summarize the optical and physical properties of Nano sensors.

Or

(b) Compare Electrochemical sensors and Nano-biosensors.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the Quantum dots, wires and wells structures in nanomaterials.

17. Analyze the Optical properties of nanomaterials.

18. Illustrate the synthesis of nanomaterials using electrodeposition and ball milling method.

19. Describe the construction and working of TEM.

20. Elaborate the function of fuel cells and its applications.